USB-to-Serial Hubs/Adaptors

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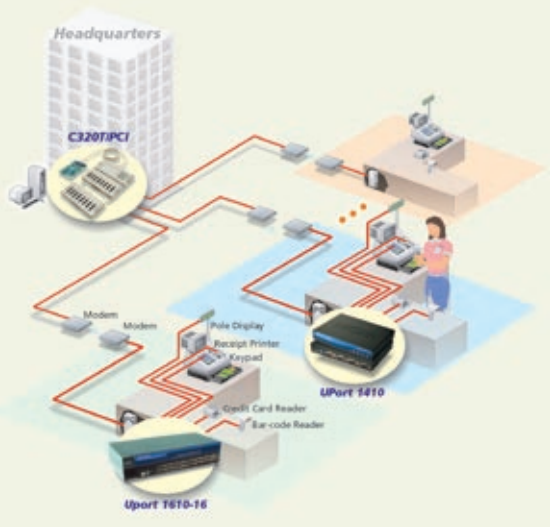
USB-to-Serial Solutions Tutorial

1/2/4/8/16-port RS-232/422/485 USB-to-Serial Hubs



Introduction

UPort is the name of MOXA's USB-to-serial product line, which provides a wide range of products and solutions to extend Windows COM ports through the PC's USB port. Important features of UPort products include support for high speed (480 Mbps) USB 2.0, MOXA UART (MU860), the ability to assign COM port numbers, data logger, magnet accessories, and mini female DB9 to terminal block adaptor. These new features make the UPort products easy to use and maintain. The UPort product line includes USB-to-serial hubs with 1, 4, 8, or 16 independent RS-232/422/485 serial ports for connecting data acquisition equipment and many other types of serial devices to notebook and desktop PCs.

Easy Plug & Play

UPort 1100/1200/1400/1600 hubs enable your laptop or workstation with the ability to communicate between a USB (Universal Serial Bus) port and up to 16 RS-232 serial devices. USB is truly plug & play, and eliminates the need to set IRQs and DIP switches. UPort 1100/1200/1400/1600 hubs are compliant with USB 2.0 and 1.1 specifications, and meet the 480 Mbps high speed requirement.

Reduce Total Cost of Ownership

These days, peripherals are more likely to be connected by Ethernet or USB. The problem is how to integrate these different interfaces. The current solution is to connect all devices using the open standard Ethernet and USB. The total cost of ownership is reduced, not only on short term hardware investment, but also on long term management and integration costs. Upgrade your existing RS-232 or RS-422/485 software with USB connectivity with a reliable Windows 98/ME/2000/XP/2003 driver.

RS-232/422/485 Support

UPort 1100/1200/1400/1600 products are mobile, expandable, and reliable USB-to-serial hubs. UPort 1100/1200/1400/1600 hubs support full RS-232 modem data and control signals (TxD, RxD, DTR, DSR, RTS, CTS, DCD) and male DB9 connectors can be used to connect serial devices to the hub. RTS/CTS hardware flow control is also supported. The UPort 1100/1200/1400/1600 come with mini female DB9 to terminal block accessories, which makes it easy to wire RS-422 and RS-485 applications. 4-wire RS-422/485 and 2-wire RS-485 are also supported, providing a serial data rate of up to 921.6 Kbps, and a 128-byte FIFO.

USB Bus Power Supported

UPort 1200/1400/1600 hubs support both bus power and external power through an adaptor. Bus power is adapted for laptop or workstation connections that support 500 mA output for USB devices. External power is adapted for those USB hubs that can only output 100 mA of current.

Top performance with 128-byte FIFO and on-chip H/W, S/W Flow Control

MOXA's 20 years of experience in serial board design is now concentrated in MOXA's new top performance serial data transmission chip, called Turbo Serial Engine™. MOXA's new technology CPU equips UPort 1200/1400/1600 Series hubs with a 128-byte FIFO, on-chip hardware and software flow control, and burst data mode. This makes the UPort 1200/1400/1600 Series the top performing USB-to-serial hub in the world.

COM Preserver™ *

User applications use names such as COM3 and COM4 to identify COM ports. Unfortunately, most USB-to-serial products are unable to use fixed COM names on the host PC, which means that the names of the COM ports change when the USB-to-serial device is plugged into a different USB port, either on the same or a different PC. In this case, the user must trace the COM names manually from the application.

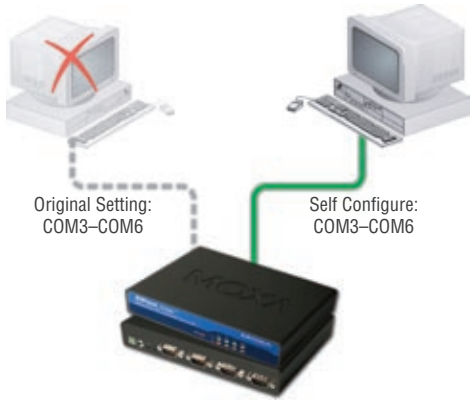
UPort 1200/1400/1600 USB-to-serial hubs have an important feature that allows them to use fixed COM names. When the user enables this "COM Preserver" function, the COM names follow the UPort device. In fact, MOXA's driver can even create the same COM port names on a different host PC. By using this feature, you do not need to modify application programs, or rebuild the entire project every time you install a new operating system or upgrade the computer. Don't worry about moving the UPort from one USB hub to another, or even from one computer to another. Once the COM preserver function is enabled, the names of the USB-to-serial COM ports will follow the hub wherever it is used.

Note that the COM preserver function is disabled by default. Users can use the traditional method of enumerating COM ports, or enable the COM preserver function to make use of this great new feature.

* Patent Pending

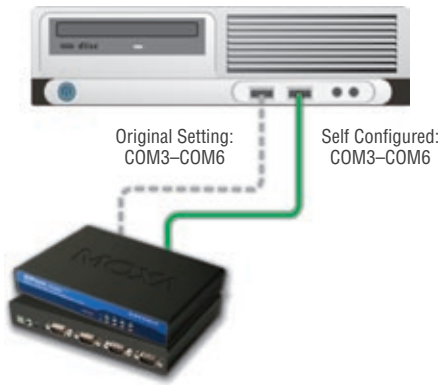
Scenario 1

COM Port assignment is maintained across different PCs



Scenario 2

COM Port assignment is maintained across different USB Ports



Full range of port densities

Serial Interface	No. of Ports	Model
RS-232	1	UPort 1110
	4	UPort 1410
	8	UPort 1610-8
	16	UPort 1610-16

Serial Interface	No. of Ports	Model
RS-422/485	2	UPort 1130
RS-232/422/485	2	UPort 1250/1250I
	4	UPort 1450/1450I
	8	UPort 1650-8
	16	UPort 1650-16

Magnet accessories for attaching to a PC case

The typical way to use a device such as the UPort 1400/1610-8/1650-8 is to place it on the desk near the laptop or desktop PC. However, placing the UPort in this way wastes space, and due to the nature of USB, makes it more likely that the connection between the PC and UPort will get disconnected. The "magnet" solution introduced by MOXA is simple, but innovative. The solution uses magnet accessories that come with the product to attach the UPort to the host PC's case. Not only does this save space, but it also allows the user to fix the position of the USB cable that attaches the UPort to the PC.

USB-to-Serial Hubs/Adaptors Selection Guide

Model Name	UPort 1110	UPort 1130	UPort 1250 UPort 1250I
USB Speed	12 Mbps (Full Speed)	12 Mbps (Full Speed)	480 Mbps (High Speed)
USB Specification	1.1	1.1	1.1/2.0
USB Connector	USB Type A	USB Type A	USB Type B
No. of Serial Ports	1	1	2
Serial Interface	RS-232	RS-422/485	RS-232/422/485
Serial Connector	Male DB9	Male DB9	Male DB9
Material	ABS + PC	ABS + PC	Metal
Dimensions (W x D x H)	37.5 x 60.0 x 20.5 mm	37.5 x 60.0 x 20.5 mm	77 x 111 x 26 mm
Optical Isolation	–	–	2 KV (UPort 1250I)
ESD Protection	15 KV ESD		
Baudrate	50 bps to 921.6 Kbps		
FIFO	64 bytes	64 bytes	128 bytes
Flow Control	RTS/CTS, XON/XOFF		
Operating Temperature	0 to 55°C		
Operating Humidity	5 to 95% RH		
Storage Temperature	-20 to 85°C (-4 to 185°F)	-20 to 85°C (-4 to 185°F)	-20 to 75°C (-4 to 167°F)
Regulatory Approvals	EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-8, FCC Part 15 Class B	EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-8, FCC Part 15 Class B	EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV
Warranty	5 years		

Model Name	UPort 1410 UPort 1450 UPort 1450I	UPort 1610-8 UPort 1650-8	UPort 1610-16 UPort 1650-16
USB Speed	480 Mbps (High Speed)	480 Mbps (High Speed)	480 Mbps (High Speed)
USB Specification	1.1/2.0	1.1/2.0	1.1/2.0
USB Connector	USB Type B	USB Type B	USB Type B
No. of Serial Ports	4	8	16
Serial Interface	RS-232 (UPort 1410), RS-232/422/485 (UPort 1450/1450I)	RS-232 (UPort 1610-8), RS-232/422/485 (UPort 1650-8)	RS-232 (UPort 1610-16), RS-232/422/485 (UPort 1650-16)
Serial Connector	Male DB9	Male DB9	Male DB9
Material	Metal	Metal	Metal
Dimensions (W x D x H)	204 x 125 x 30 mm	204 x 125 x 44 mm	440 x 189 x 45 mm
Optical Isolation	2 KV (UPort 1450I)	–	–
ESD Protection	15 KV ESD Protection		
Baudrate	50 bps to 921.6 kbps		
FIFO	128 bytes	128 bytes	128 bytes
Flow Control	RTS/CTS, XON/XOFF		
Operating Temperature	0 to 55°C		
Operating Humidity	5 to 95% RH		
Storage Temperature	-20 to 75°C (-4 to 167°F)	-20 to 75°C (-4 to 167°F)	-20 to 75°C (-4 to 167°F)
Regulatory Approvals	EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV	EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV	EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV
Warranty	5 years		

UPort 1110

1-port RS-232 USB-to-Serial Adaptor

Features

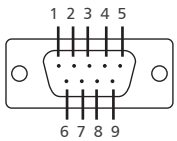
- Fully compliant with USB 2.0
- Supports 12 Mbps USB data rate
- RS-232 speed up to 921.6 Kbps
- Supports Win98/ME/2K/XP/2003 and Linux drivers
- Male DB9 connectors for RS-232
- Active (USB), TxD/RxD (RS-232) LEDs
- Built-in 15 KV ESD Surge Protection

Instant Plug and Play

The UPort 1110 enables your laptop or workstation with the ability to communicate between a USB (Universal Serial Bus) port and 1 RS-232 serial peripheral. The UPort 1110 adds 1 Windows serial COM port through the PC's USB port, and is compatible with both new and legacy RS-232 devices. This plug and play USB solution is perfect for mobile, instrumentation, and point-of-sale applications.

Pin Assignment

Male DB9



PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR

PIN	RS-232
5	GND
6	DSR
7	RTS
8	CTS

Specifications

USB

USB 1.1 compliant; USB 2.0 compatible
Connector: USB type A
Speed: Full speed 12 Mbps

Serial Interface

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
Number of Ports: 1
Connector: Male DB9
FIFO: 64 bytes

Serial Communication Parameters

Parity: None, Even, Odd, Space, Mark
Data Bits: 5, 6, 7, 8
Stop Bit(s): 1, 1.5, 2
Flow control: RTS/CTS, XON/XOFF
Speed: 50 bps to 921.6 Kbps

Mechanical Specifications

Material: ABS + PC
Gross Weight: 60 g (0.13 lb)
ESD Protection: Embedded 15 KV ESD Protection

Power and Environment

Power Consumption: 30 mA @ 5 VDC
Operating Temperature: 0 to 55 °C (32 to 131 °F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85 °C (-4 to 185 °F)
Dimensions (W x D x H): 37.5 x 60 x 20.5 mm

Regulatory Approvals

EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-8, FCC Part 15 Class B

Warranty: 5 years

Ordering Information

UPort 1110: 1-port RS-232 to USB Adaptor

Package Checklist

- 1 USB-to-Serial Adaptor
- Quick Installation Guide
- Document and Software CD-ROM

UPort 1130

1-port RS-422/485 USB-to-Serial Adaptor

Mini DB9F-to-TB

Features

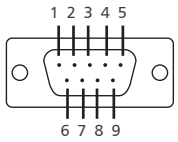
- Fully compatible with USB 2.0
- Software selectable RS-422, 4-wire RS-485, and 2-wire RS-485
- Male DB9 and Terminal Block for easy wiring
- Active (USB), TxD/RxD LEDs
- Built-in 15 KV ESD Protection
- Serial transmission speed up to 921.6 Kbps

Instant Plug and Play

The UPort 1130 enables your laptop or workstation with the ability to communicate between a USB (Universal Serial Bus) port and one RS-422/485 serial peripheral. The UPort 1130 adds 1 Windows serial COM port through the PC's USB port, and is compatible with both new and legacy RS-422/485 devices. This plug and play USB solution is perfect for mobile, instrumentation, and point-of-sale applications.

Pin Assignment

Male DB9



PIN	RS-422/4-wire RS-485	2-wire RS-485
1	TxD-(A)	–
2	TxD+(B)	–
3	RxD+(B)	Data+(B)
4	RxD-(A)	Data-(A)

PIN	RS-422/4-wire RS-485	2-wire RS-485
5	GND	GND
6	–	–
7	–	–
8	–	–

Specifications

USB

USB 1.1 compliant; USB 2.0 compatible
Connector: USB type A
Speed: Full speed 12 Mbps

Serial Interface

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
4-wire RS-485: TxD+(B), TxD-(A), RxD+ (B), RxD-(A), GND
2-wire RS-485: Data+(B), Data-(A), GND
Connector: Male DB9
FIFO: 64 bytes

Serial Communication Parameters

Parity: None, Even, Odd, Space, Mark
Data Bits: 5, 6, 7, 8
Stop Bit(s): 1, 1.5, 2
I/O address/IRQ: BIOS assigned
Flow control: XON/XOFF
Speed: 50 bps to 921.6 Kbps

Power and Environment

Operating Temperature: 0 to 55°C (32 to 131°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)
Dimensions (W x D x H): 37.5 x 60 x 20.5 mm

Mechanical Specifications

Material: ABS + PC
Gross Weight: 60 g (0.13lb)
ESD Protection: Embedded 15 KV ESD Protection

Regulatory Approvals

EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-8, FCC Part 15 Class B

Warranty: 5 years

Ordering Information

UPort 1130: 1-port RS-422/485 USB-to-Serial Adaptor

Package Checklist

- 1 USB-to-Serial Adaptor
- Quick Installation Guide
- Document and Software CD-ROM
- Mini DB9F-to-TB (Female DB9 to Terminal Block)

UPort 1250/1250I

2-port RS-232/422/485 USB-to-Serial Hubs with 2 KV Isolation Protection

UPort 1250 UPort 1250I

Features

- Supports hi-speed USB 2.0, for up to 480 Mbps data transmission
- Serial transmission speed up to 921.6 Kbps
- 128-byte FIFO and on-chip H/W, S/W flow control
- No additional I/O or IRQ required
- Built-in 15 KV ESD protection
- Supports Windows 2000 and Windows XP/2003 (x86 and x64) drivers
- Easy maintenance with LED display and management software
- Mini female DB9 to terminal block for easy wiring
- Bus power (UPort 1250) and external power (UPort 1250I) models available

Instant Plug and Play

The UPort 1200 series of USB-to-serial hubs allow you to connect up to 2 RS-232/422/485 devices to your laptop or workstation through the USB (Universal Serial Bus) port. This plug and play USB solution is perfect for mobile, instrumentation, and point-of sale applications.

Simplified, Hassle-free Serial Port Expansion

USB plug and play allows easy serial port expansion that requires no IRQ, DMA, or I/O address resources. Users no longer need to open the chassis or power down the system to add COM ports, saving on setup time and cost.

Top Performance with USB2.0, 128-byte FIFO and on-chip H/W, S/W Flow Control

MOXA's many years of experience in serial board design is now built into MOXA's new top performance CPU chip, called MOXA ART, which equips the UPort 1200 Series with USB 2.0 (hi-speed 480 Mbps), 128-byte FIFO, on-chip hardware and software flow control, and burst data mode. This makes the UPort 1200 Series the top performing USB-to-Serial hub in the world.

Ordering Information

UPort 1250: 2-port RS-232/422/485 USB-to-Serial Hub
UPort 1250I: 2-port RS-232/422/485 USB-to-Serial Hub with 2 KV Isolation Protection

Package Checklist

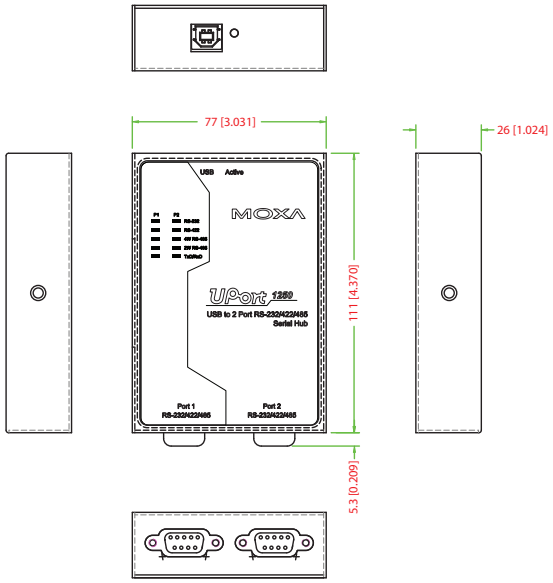
- 1 USB-to-Serial Hub and USB cable
- Document and Software CD-ROM
- Quick Installation Guide
- 1 x mini DB9F-to-TB adaptor
- Power adaptor (UPort 1250I only)

Optional Accessories

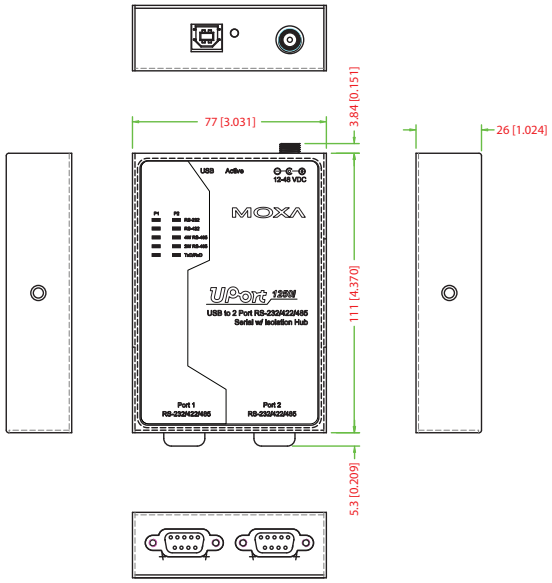
Mini DB9F-to-TB: Mini Female DB9 to Terminal Block Adaptor

Dimensions (unit = mm)

UPort 1250

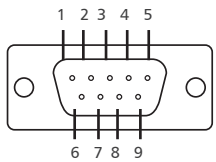


UPort 1250I



Pin Assignment

Male DB9



PIN	RS-232	RS-422/4-wire RS-485	2-wire RS-485
1	DCD	TxD-(A)	–
2	RxD	TxD+(B)	–
3	TxD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	–	–
7	RTS	–	–
8	CTS	–	–

Specifications

USB

Speed: Hi-Speed (480 Mbps), Full Speed (12 Mbps)
Compliant with USB 1.1, 2.0
Connector Type: USB Type B

Serial

Number of Ports: 2

Interface

Signals:
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
4-wire RS-485: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
2-wire RS-485: Data+(B), Data-(A), GND
Connector: Male DB9
FIFO: 128 bytes

Performance

Baudrate: 50 bps to 921.6 Kbps

Configuration

Data Bits: 5, 6, 7, 8
Stop Bit(s): 1, 1.5, 2
I/O address/IRQ: BIOS assigned
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
Operating Systems: Windows 2000, Windows XP/2003 (x86 and x64)

Power and Environment

Power Requirement:
UPort 1250 (5 VDC Bus Power): 360 mA (max)
UPort 1250I (12 to 48 VDC External Power): 200 mA (max) @ 12 VDC
Operating Temperature: 0 to 55°C (32 to 131°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 75°C (-4 to 167°F)

ESD Protection: Embedded 15 KV ESD Protection

Regulatory Approvals

EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV

Warranty: 5 years

UPort 1400 Series

4-port RS-232 or RS-232/422/485 USB-to-Serial Hub with 2 KV Isolation Protection

Features

- Supports hi-speed USB 2.0, up to 480 Mbps
- Serial transmission speed up to 921.6 Kbps
- 128-byte FIFO and on-chip H/W, S/W flow control
- Built-in 15 KV ESD Protection
- 2 KV Optical Isolation Protection (UPort 1450I only)
- IP30-rated, rugged metal case
- COM port assignments maintained across different PCs
- Optional magnet accessories for attaching to PC's case
- Supports Windows 2000 and XP/2003(x86 & x64) operating systems
- Supports both bus power and external power

Instant Plug and Play

The UPort 1400 Series enables your laptop or workstation with the ability to communicate between a USB (Universal Serial Bus) port and up to 4 RS-232 or RS-232/422/485 serial peripherals. UPort 1400 Series adds 4 Windows serial COM ports through its USB connection and is compatible with new and legacy RS-232 or RS-422/485 devices. This plug and play USB solution is perfect for mobile, instrumentation, and point-of sale applications.

Simplified, Hassle-free Serial Port Expansion

USB plug and play allows easy serial port expansion that requires no IRQ, DMA, or I/O address resources. Users no longer need to open the chassis or power down the system when adding COM ports, saving on setup time and cost.

Top Performance with USB 2.0, 128-byte FIFO, and on-chip H/W, S/W Flow Control

Our many years of experience in serial board design is now concentrated in MOXA's new top performance CPU chip. Called MOXA ART, the chip equips the UPort 1400 Series with USB 2.0 (hi-speed 480 Mbps), 128-byte FIFO, on-chip hardware and software flow control, and burst data mode. This makes the UPort 1400 Series the top performing USB-to-serial hub in the world.

Ordering Information

UPort 1410: 4-port RS-232 USB-to-Serial Hub
UPort 1450: 4-port RS-232/422/485 USB-to-Serial Hub
UPort 1450I: 4-port RS-232/422/485 USB-to-Serial Hub with 2 KV Isolation Protection

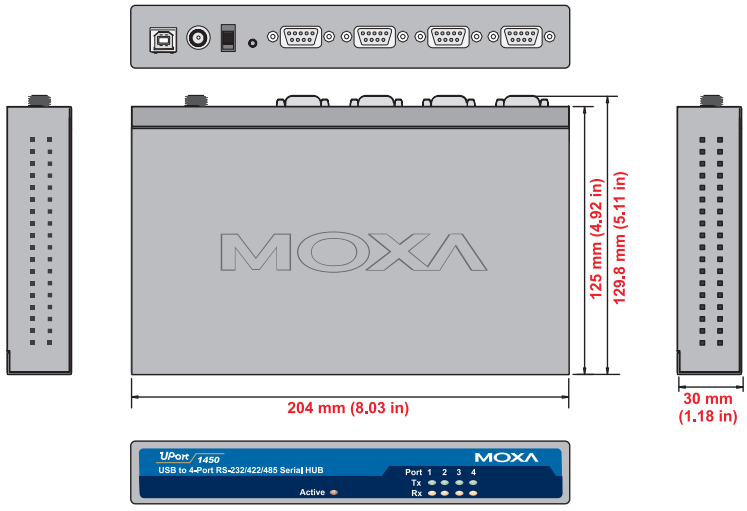
Package Checklist

- 1 USB-to-Serial Hub and USB Cable
- Quick Installation Guide and CD-ROM
- Power Adaptor (UPort 1450 and UPort 1450I)
- 1 x Mini DB9F-to-TB (UPort 1450 and UPort 1450I)

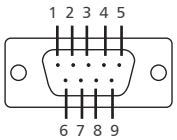
Optional Accessories

Mini DB9F-to-TB: Mini Female DB9 to Terminal Block
Magnets: For attaching the hub to a PC's case

Dimensions (unit = mm)



Male DB9 RS-232/422/485 port



PIN	RS-232	RS-422/4-wire RS-485	2-wire RS-485
1	DCD	TxD-(A)	–
2	RxD	TxD+(B)	–
3	TxD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	–	–
7	RTS	–	–
8	CTS	–	–

Specifications

USB

Speed: Hi-Speed (480 Mbps), Full Speed (12 Mbps)

Compliant with USB 1.1, 2.0

Connector Type: USB Type B

Serial

Number of Ports: 4

Interface

Signals:

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

RS-422: TxD+(B), TxD-(A), RxD+ (B), RxD-(A), GND

4-wire RS-485: TxD+ (B), TxD-(A), RxD+ (B), RxD-(A), GND

2-wire RS-485: Data+ (B), Data-(A), GND

Connector: Male DB9

FIFO: 128 bytes

Performance

Baudrate: 50 bps to 921.6 Kbps

Configuration

Data Bits: 5, 6, 7, 8

Stop Bit(s): 1, 1.5, 2

I/O address/IRQ: BIOS assigned

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF

Operating Systems: Windows 2000, Windows XP/2003 (x86 and x64)

Power and Environment

Power Requirement:

UPort 1410: 180 mA (max) @ 5 VDC bus power

UPort 1450: 260 mA (max) @ 12 VDC external power

UPort 1450I: 360 mA (max) @ 12 VDC external power

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 75°C (-4 to 167°F)

ESD Protection: Embedded 15 KV ESD Protection

Optical Isolation: 2 KV (UPort 1450I only)

Regulatory Approvals

EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV

Warranty: 5 years

UPort 1610-8/1650-8

8-port RS-232 or RS-232/422/485 USB-to-Serial Hub

Features

- Supports high-speed USB 2.0, up to 480 Mbps
- Serial transmission speed up to 921.6 Kbps
- 128-byte FIFO and on-chip H/W, S/W flow control
- Built-in 15 KV ESD Protection
- IP30-rated, rugged metal case
- COM port assignments maintained across different PCs
- Optional magnet accessories for attaching to PC's case
- Mini Female DB9 to Terminal Block for easy wiring
- Supports both bus power and external power

Instant Plug and Play

The UPort 1600 Series enables your laptop or workstation with the ability to communicate between a USB (Universal Serial Bus) port and up to 8 RS-232 or RS-232/422/485 serial peripherals. The UPort 1600 Series adds 8 Windows serial COM ports through a USB port and is compatible with both new and legacy RS-232 or RS-422/485 devices. This plug and play USB solution is perfect for mobile, instrumentation, and point-of sale applications.

Simplified, Hassle-free Serial Port Expansion

USB plug and play allows easy serial port expansion that requires no IRQ, DMA, or I/O address resources. Users no longer need to open the chassis or power down the system when adding COM ports, saving on setup time and cost.

Top Performance with 128-byte FIFO and on-chip H/W, S/W Flow Control

Our many years of experience in serial board design is now concentrated in MOXA's new top performance CPU chip. Called MOXA ART, the chip equips the UPort 1600 Series with USB 2.0 (high-speed 480 Mbps), 128-byte FIFO, on-chip hardware and software flow control, and burst data mode. This makes the UPort 1600 Series the top performing USB-to-serial hub in the world.

Ordering Information

UPort 1610-8: 8-port RS-232 USB-to-Serial Hub
UPort 1650-8: 8-port RS-232/422/485 USB-to-Serial Hub

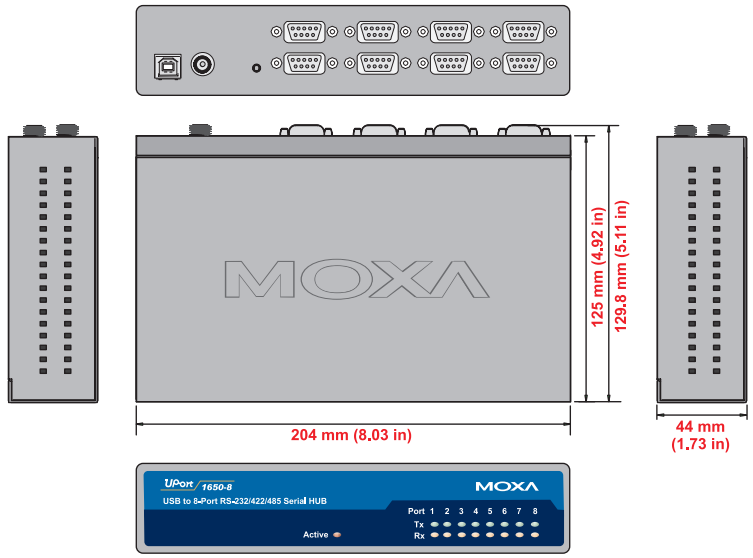
Package Checklist

- 1 USB-to-Serial Hub
- Quick Installation Guide and CD-ROM
- USB Cable and Power Adapator
- 1 x Mini DB9F-to-TB (UPort 1650-8)

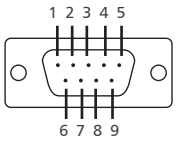
Optional Accessories

Mini DB9F-to-TB: Mini Female DB9 to Terminal Block
Magnets: For attaching the hub to a PC's case

Dimensions (unit = mm)



Male DB9 RS-232/422/485 port



PIN	RS-232	RS-422/4-wire RS-485	2-wire RS-485
1	DCD	TxD-(A)	---
2	RxD	TxD+(B)	---
3	TxD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	---	---
7	RTS	---	---
8	CTS	---	---

Specifications

USB

Speed: High Speed (480 Mbps), Full Speed (12 Mbps)

Compliant with USB 1.0, 1.1, 2.0

Connector Type: USB Type B

Serial

Number of Ports: 8

Interface

Signals:

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

RS-422: TxD+(B), TxD-(A), RxD+ (B), RxD-(A), GND

4-wire RS-485: TxD+ (B), TxD-(A), RxD+ (B), RxD-(A), GND

2-wire RS-485: Data+ (B), Data-(A), GND

Connector: Male DB9

FIFO: 128 bytes

Performance

Baudrate: 50 bps to 921.6 Kbps

Data Bits: 5, 6, 7, 8

Stop Bit(s): 1, 1.5, 2

I/O address/IRQ: BIOS assigned

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF

Operating Systems: Windows 2000, Windows XP/2003 (x86 and x64)

Power and Environment

Power Requirement:

UPort 1610-8: 230 mA (max) @ 12 VDC external power

UPort 1650-8: 340 mA (max) @ 12 VDC external power

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 75°C (-4 to 167°F)

ESD Protection: Embedded 15 KV ESD Protection

Regulatory Approvals

EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV

Warranty: 5 years

UPort 1610-16/1650-16

16-port RS-232 or RS-232/422/485 USB-to-Serial Hub

Features

- Supports high-speed USB 2.0, up to 480 Mbps
- Serial transmission speed up to 921.6 Kbps
- 128-byte FIFO and on-chip H/W, S/W flow control
- Standard 19-inch rack-mountable
- Built-in 15 KV ESD Protection
- IP30-rated, rugged metal case
- COM port assignments maintained across different PCs
- Optional magnet accessories for attaching to PC's case
- Mini Female DB9 to Terminal Block for easy wiring
- Supports both bus power and external power

Instant Plug and Play

The UPort 1600 Series enables your laptop or workstation with the ability to communicate between a USB (Universal Serial Bus) port and up to 16 RS-232 or RS-232/422/485 serial peripherals. The UPort 1600 Series adds 16 Windows serial COM ports through a USB connection and is compatible with both new and legacy RS-232 or RS-422/485 devices. This plug and play USB solution is perfect for mobile, instrumentation, and point-of sale applications.

Simplified, Hassle-free Serial Port Expansion

USB plug and play allows easy serial port expansion that requires no IRQ, DMA, or I/O address resources. Users no longer need to open the chassis or power down the system to add COM ports, saving on setup time and cost.

Top Performance with 128-byte FIFO and on-chip H/W, S/W Flow Control

Our many years of experience in serial board design is now concentrated in MOXA's new top performance CPU chip. Called MOXA ART, the chip equips the UPort 1600 Series with USB 2.0 (high-speed 480 Mbps), 128-byte FIFO, on-chip hardware and software flow control, and burst data mode. This makes the UPort 1600 Series the top performing USB-to-serial hub in the world.

19-inch Rackmount USB-to-Serial Hub

The UPort 1610-16/1650-16 has a professional cabinet design, with Tx/Rx LEDs for all serial ports on the front panel and the male DB9 serial ports on the rear panel. This makes the UPort 1610-16/1650-16 suitable for standard 19-inch rack mounting, simplifying operation, maintenance, and administration.

Ordering Information

UPort 1610-16: 16-port RS-232 USB-to-Serial Hub
UPort 1650-16: 16-port RS-232/422/485 USB-to-Serial Hub

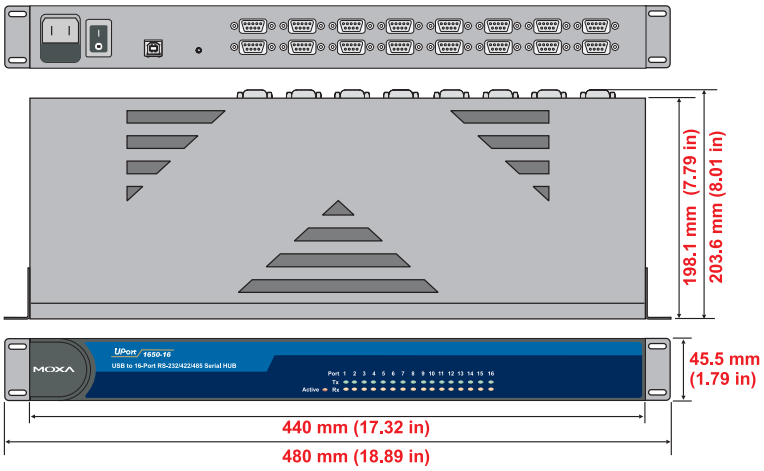
Package Checklist

- 1 USB-to-Serial Hub
- Quick Installation Guide and CD-ROM
- USB Cable and Power Cord
- 1 x Mini DB9F-to-TB (UPort 1650-16)

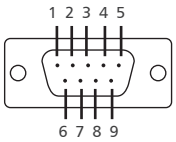
Optional Accessories

Mini DB9F-to-TB: Mini Female DB9 to Terminal Block
Magnets: For attaching the hub to a PC's case

Dimensions (unit = mm)



Male DB9 RS-232/422/485 port



PIN	RS-232	RS-422/4-wire RS-485	2-wire RS-485
1	DCD	TxD-(A)	–
2	RxD	TxD+(B)	–
3	TxD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	–	–
7	RTS	–	–
8	CTS	–	–

Specifications

USB

Speed: High Speed (480 Mbps), Full Speed (12 Mbps)

Compliant with USB 1.0, 1.1, 2.0

Connector Type: USB Type B

Serial

Number of Ports: 16

Interface

Signals:

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

RS-422: TxD+(B), TxD-(A), RxD+ (B), RxD-(A), GND

4-wire RS-485: TxD+ (B), TxD-(A), RxD+ (B), RxD-(A), GND

2-wire RS-485: Data+ (B), Data-(A), GND

Connector: Male DB9

FIFO: 128 bytes

Performance

Baudrate: 50 bps to 921.6 Kbps

Configuration

Data Bits: 5, 6, 7, 8

Stop Bit(s): 1, 1.5, 2

I/O address/IRQ: BIOS assigned

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF

Operating Systems:

Windows 2000, Windows XP/2003 (x86 and x64)

Power and Environment

Power Requirement:

UPort 1610-16: 130 mA (max) @ 100 VAC

UPort 1650-16: 130 mA (max) @ 100 VAC

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 75°C (-4 to 167°F)

ESD Protection: Embedded 15 KV ESD Protection

Regulatory Approvals

EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV

Warranty: 5 years

e-Ticketing Kiosk Uses MOXA's USB-to-Serial Hub to Connect Peripherals

Introduction

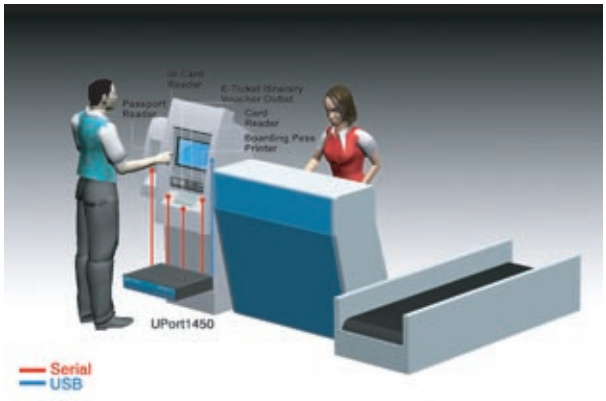
The installation of kiosks is a rapid growth industry, particularly as far as airports are concerned. In fact, a variety of kiosks have been installed at airports around the world to serve the needs of passengers. Kiosks are available to provide fast food, different types of merchandise, bill payment, musical entertainment, printing of digital photographs, retail self-checkout, and more. The tremendous growth in the use of kiosks around the world has motivated hardware manufacturers and system integrators to join forces and develop a wide range of innovative kiosks.

Solution

Shanghai, which is the most advanced city in China, has various types of kiosks installed in airport terminals, subways, museums, banks, and department stores. A new type of kiosk, the self-help e-ticketing kiosk, has recently made an appearance in the Shanghai airport. Passengers who have electronic tickets can go to the self-help kiosk to check in without needing to wait for assistance from a human clerk. In addition, passengers only need a valid ID to use the machine; once the ID has been validated, the passenger can use the kiosk to check seating options. The passenger's boarding pass will be printed out automatically.

An IBM slim-panel computer, which has one serial port and two USB ports, serves as the brains of the kiosk. The problem this presented to designers is that the system uses a total of 5 different serial devices (passport reader, e-ticket printer, boarding pass printer, ID card reader, and frequent flyer card reader). To overcome the hardware limitations, they used MOXA's UPort 1410, a 4-port USB-to-serial hub, to add 4 serial ports through one USB port. This was all done without needing to remove the outer cover of the computer.

Another attractive feature was the top transmission performance provided by the UPort 1410. With 921.6 Kbps serial transmission, up to 480 Mbps USB transmission (USB 2.0), and a 128-byte FIFO, the UPort 1410 enhances the self-help kiosk transmission performance and reduces the system's overall loading.



Benefits

- Four RS-232 serial ports for easy expansion
- High speed USB 2.0, for up to 480 Mbps over USB
- Serial transmission speed up to 921.6 Kbps
- Support for all major operating systems

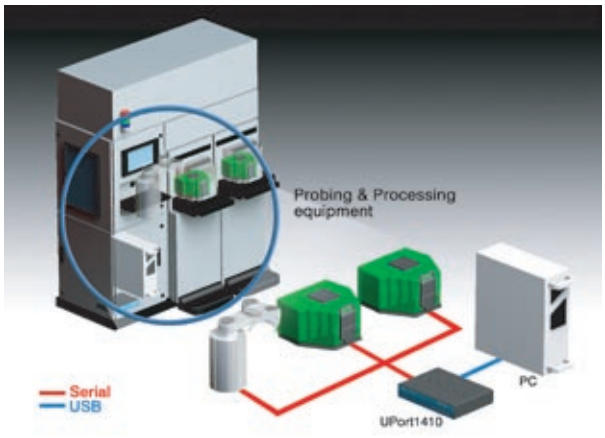
Automated Semiconductor Processing

Introduction

In an automated wafer manufacturing system, wafers are stored in a front open unified pod (FOUP) for inspection or processing. The procedures involved in wafer manufacturing require specific types of equipment with industrial grade PCs (IPCs) built-in. While IPCs can connect to the manufacturing execution system (MES) over Ethernet, some IPCs require a multiport serial board to connect to the SMIF or to the load/unload ports. However, as IPCs grow more and more compact, multiport serial boards are no longer an option due to the limited space that is available.

Solution

The easiest solution is to add COM ports from outside of the PC by using USB-to-serial hubs. MOXA's UPort 1410 adds four RS-232 serial ports to any USB-capable IPC and does not require system integrators to know I/O or IRQ settings for troubleshooting. When compared to multiport serial boards that are installed internally, USB-to-serial solutions are easier to install and maintain, making them ideally suited for the processing equipment used in semiconductor wafer manufacturing.



Benefits

- Simplifies maintenance with external COM expansion
- Overcomes limitations of smaller PCs

Compact GPS Experimental Platform

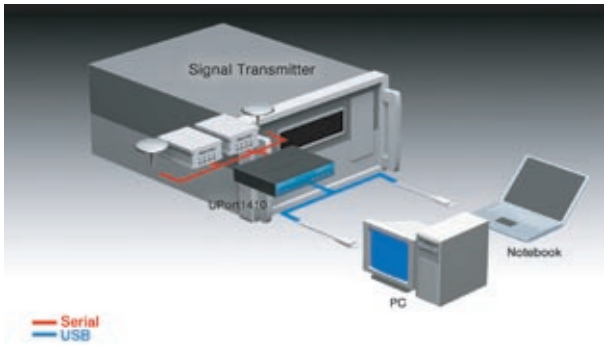
Introduction

With rapid advancements in communication technology, university researchers have been eager to explore the possibilities of wireless communication in a way that can positively impact society.

Conventional GPS-based experimental platforms consist of many GPS signal transmitters using RS-232 as the data communication interface. Researchers must use desktop computers to access the equipment, which reduces their mobility when conducting infield research.

Solution

Reducing the size of the experimental platform allows the testing tools to be more mobile, giving researchers more freedom of movement. The platform is about the size of a typical suitcase. The GPS signal transmitters are connected to a 4-port USB-to-Serial hub and are installed inside the case. The case can be moved around from place to place to perform signal transmission error tests, GPS measurement error tests, and satellite orbit calculations.



Benefits

- Increases mobility during infield assignments.
- Allows students to use a laptop to access platform.
- Greatly reduces school's procurement costs.